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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,140	10/09/2001	Ralph Thomas Hoctor	RD-27,855	7372

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EXAMINER	
ZEWDU, MELESS NMN	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/973,140	HOCTOR ET AL.	
	Examiner	Art Unit	
	Meless N. Zewdu	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 May 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 7-21* is/are rejected.

7)☒ Claim(s) *5 and 6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Remarks/Arguments

1. This action is in response to the communication filed on 5/9/06.

2. Claims 1-21 are pending in this action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (Chen) (US 6,522,882 B1) in view of Watters et al. (Watters) (US 6,230,018 B1).

Regarding claim 1, Chen discloses a method for determining a location of an object within an area of interest (abstract, fig. 1), comprising:

transmitting an RF signal from the object (a mobile cellular transceiver) to at least three receivers (at least some or plurality of cell sites) (abstract, fig. 1, col. 5 lines 9-53). Since the system described in Chen's reference utilizes a RF medium (see col. 7,

lines 5-13; col. 8, lines 1-18), the object (the mobile transceiver) would have to transmit an RF signal while being in a conversation state with the plurality of cell sites.

transmitting a signal from at least one beacon transmitter to the at least three receivers (col. 3, line 60-col.4, line 10).

calculating, at each of the at least three receivers (cell sites), time difference of arrival information based on the signal from said at least one beacon transmitter and the RF signal transmitted from the object (abstract, fig. 1, col. 5 lines 34-53). Since, the cell sites receive both a RF signal (while in conversation state) and a known beacon signal from the mobile transceiver and calculate time difference of arrival, it could be said that the time difference of arrival is calculated based on the RF and beacon signals.

determining a location of the object within said area of interest based on said time difference of arrival information (col. 5 lines 34-37). Although Chen's reference discloses a known beacon signal, it does not explicitly teach that the known beacon signal is from a transmitter being at a known location, as claimed by applicant. However, in the same field of endeavor, Watters teaches about the use of calibration terminals (beacon transmitters) that are provided at known locations within the coverage area of the network (see at least fig. 3; col. 4, line 43-col. 5, line 28). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Chen with that of Watters for the advantage of allowing the network to generate correction factors for improving the

accuracy of location determinations using TDOA measurements made at other locations within the network (see col. 5, lines 14-18).

Regarding claim 4, Chen et al. further discloses the method of claim 1 wherein the step of determining a location of the object comprises using a maximum likelihood algorithm (when calculating the location of the mobile transceiver from the respective location of each of the at least some of the plurality of cell sites and respective times at which the beacon signal was received at each of the at least some of the plurality of cell sites which means it using a maximum likelihood algorithm) (abstract).

Regarding claim 13, Chen et al. discloses a system for determining a location of an object within an area of interest (abstract, fig. 1), comprising:

a mobile device carried by said object (abstract; fig. 1, element 18; col. 5 lines 9-53), said mobile device including a transmitter for transmitting an RF signal (fig. 1, element 18);

at least one beacon transmitter (col. 3, line 60-col.4, line 10).

at least three base stations within said area of interest (abstract), each of said at least three base stations comprising a detector for detecting the RF signal transmitted from said mobile device (see fig. 1, elements 14; col. 1 line 40-47), and further comprising a processor for deriving time difference of arrival information based on the beacon signal and the RF signal (col. 3 lines 40-67); and

a controller for determining the location of the object within said area of interest based on the time difference of arrival information calculated by each of the three base stations (col. 5 lines 34-53). Although Chen's reference discloses a known beacon

signal, it does not explicitly teach that the known beacon signal is from a transmitter being at a known location, as claimed by applicant. However, in the same field of endeavor, Watters teaches about the use of calibration terminals (beacon transmitters) that are provided at known locations within the coverage area of the network (see at least fig. 3; col. 4, line 43-col. 5, line 28). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching of Chen with that of Watters for the advantage of allowing the network to generate correction factors for improving the accuracy of location determinations using TDOA measurements made at other locations within the network (see col. 5, lines 14-18).

Claims 2-3, 7-12, and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Watters and further in view of Richards et al. (Richards) (6,466,125).

Regarding claim 2, the above combination of references teach the method of claim 1, including RF signal, as discussed in the rejection of claim 1 above. But, Chen in view of Watters does not explicitly teach about a RF signal that comprises an ultra-wideband signal, as claimed by applicant. However, in the same field of endeavor, Richards teaches that an ultra-wideband (UWB) RF signal can be used, among other things, for determining the current position/location of a patient (col. 4 line 4-18). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to further modify the above references with the teaching of Richards for the advantage of monitoring/tracking people that may need medical assistance (see col. 1, lines 22-26).

Regarding claim 3, Richards et al. further discloses the method of claim 2, wherein said ultra-wideband signal comprises a transmitted-reference ultra-wideband signal (see col. 31 line 21 thru col. 37 line 25).

Regarding claim 7, Richards et al. further discloses the method of claim 2, wherein said ultra-wideband signal comprises a transmitted-reference, delayed hopped ultra-wideband signal (col. 11 line 8-67); and wherein the step of transmitting a transmitted-reference, delayed hopped ultra-wideband signal comprises generating pairs of pulses separated by a time interval D and encoding by relative polarity of pulses of said pairs (col. 11 line 8-67); and wherein the step of calculating time difference of arrival information comprises delaying received signals by the time interval D (col. 13 line 65 thru col. 14 line 11).

Regarding claim 8, Richards et al. further discloses the method of claim 7 wherein the step of transmitting further comprises generating the pairs of pulses at a pulse repetition rate which is variable in order to shape a spectrum of transmission (fig. 4, col. 6 line 17-35).

Regarding claim 9, Richards et al. further discloses the method of claim 7 wherein transmitted-reference, delayed hopped ultra-wideband signals are transmitted from a plurality of objects, each transmitted-reference, delayed hopped ultra-wideband (impulse) signal having a different time interval D between pulses of said pairs (col. 6 line 17 thru col. 7 line 38).

Regarding claim 10, Richards et al. further discloses the method of claim 2, wherein the step of transmitting the ultra-wideband signal is performed by a transmitter carried by a patient, and wherein said area of interest is a medical facility (abstract).

Regarding claim 11, Richards et al. further discloses the method of claim 9, wherein the step of transmitting the ultra-wideband signal further includes transmitting medical information of said patient with the ultra-wideband signal (fig. 12, col. 21 lines 53-63).

Regarding claim 12, Richards et al. further disclose the method of claim 2, wherein the step of transmitting the ultra-wideband signal is performed by a transmitter attached to patient, and wherein said area of interest is a medical facility (abstract, fig. 10-13, col. 19 lines 56-64). However, Richards et al. does not specifically disclose the transmitter attached to equipment. But, it would have been obvious to one skilled in the art that the device can be used to attach to the equipment in order to monitor the equipment from removing.

Regarding claim 14, the feature of claim 14 is similar to the feature of claim 2. Hence, claim 14 is rejected on the same ground and motivation as claim 2.

Regarding claim 15, the feature of claim 15 is similar to the feature of claim 3. Hence, claim 15 is rejected on the same ground and motivation as claim 3.

Regarding claim 16, Richards et al. further discloses the system of claim 13, wherein said ultra-wideband signal comprises a transmitted reference, delayed hopped ultra-wideband signal (col. 11 line 8-67), and said detector comprises a pulse-pair correlator (fig. 2, col. 4 lines 38-67).

Regarding claim 17, the feature of claim 17 is similar to the feature of claim 8. Hence, claim 17 is rejected on the same ground and motivation as claim 8.

Regarding claim 18, the references applied to claim 13 teach/provide at least three base stations (see fig. 1, in Chen), each of the three base stations comprises a plurality of detectors/receivers for detecting the RF signals (see Chen, col. 7, lines 5-13) and deriving/calculating time difference of arrival information based on the beacon signal and the RF signals (see Chen, abstract; col. 3, line 60-col. 4, line 11) said controller (see fig. 1, element MTSO) determining locations of said objects/mobiles based on said time difference of arrival information (see Chen, col. 9, lines 21-32). The difference feature, **"a plurality of mobile devices transmit RF signals"**, lacked in the above references, is provided by Richards (fig. 18-29, particularly figs. 18-23; col. 28, line 39-col. 32; col. 30, lines 1-50). In Richards UWB location system, the M1 and M2 are mobile devices. The motivation is as provided in the rejection of claim 13 above.

Regarding claim 19, the feature of claim 19 is similar to the feature of claim 10. Hence, claim 19 is rejected on the same ground and motivation as claim 10.

Regarding claim 20, the feature of claim 20 is similar to the feature of claim 11. Hence, claim 20 is rejected on the same ground and motivation as claim 11.

Regarding claim 21, the feature of claim 21 is similar to the feature of claim 12. Hence, claim 21 is rejected on the same ground and motivation as claim 12.is claim is rejected for the same reason as set forth in claim 12.

Allowable Subject Matter

Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Note: claim 6 is objected (indicated allowable) because of its dependency on claim 5.

The following is a statement of reasons for the indication of allowable subject matter: **Regarding claim 5,** the prior art of record does not teach or fairly suggest a plurality of beacon transmitters each having an independent local clock, as recited in claim 5.

Response to Arguments

Applicant's arguments filed 5/9/06 have been fully considered but they are not persuasive. With regard to claims 1 and 13, in particular, applicant raises a technical issue by saying "**the examiner provided no specific information on how Chen can be combined with Watters**." Examiner respectfully provides the following response. Consider Chen, the primary reference. Here, a cell site, in conversation with a mobile transceiver, causes the mobile transceiver to transmit a known beacon signal to cell sites in a given coverage area. The purpose is to determine the location of the mobile transceiver using TDOA. So, one can see that the known beacon signal is not coming from a transmitter whose location is known. On the other hand, Watters provide calibration signals/beacons from know/fixed locations. According to Watters, this

configuration improves the accuracy of location determinations using TDOA measurements made at other locations within the network. In conclusion, one skilled in the art, having read the references of both Chen and Watters, would figure out that the use of a beacon signal improves the accuracy of TDOA measurements when the beacon signal is provided from a stationary transmitter and would have Chen's mobile beacon be substituted with Watters stationary beacon. Hence, the argument is not persuasive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meless N. Zewdu whose telephone number is (571) 272-7873. The examiner can normally be reached on 8:30 am to 5:00 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Corsaro Nick can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry of a general nature relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Meless Zewdu Zewdu, Meless 7-20-06

Examiner

13 July 2006.